

## 10/580,124-337515-EIC SEARCH

TEXT SEARCH

=&gt; d his 187

(FILE 'HCAPLUS' ENTERED AT 15:24:14 ON 22 JUL 2010)

L87 25 S L86 OR L85  
 SAV TEMP L85 SHE124HCP/A  
 DEL SHE124REG/A

=&gt; d que 187

L2 16 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (12158-74-6/B  
 I OR 125761-45-7/BI OR 25038-59-9/BI OR 62683-60-7/BI  
 OR 79-10-7/BI OR 852929-90-9/BI OR 852929-92-1/BI OR  
 852929-94-3/BI OR 852929-96-5/BI OR 852929-98-7/BI OR  
 852930-00-8/BI OR 852930-02-0/BI OR 852930-04-2/BI OR  
 852930-06-4/BI OR 9003-53-6/BI OR 9003-56-9/BI)

L5 1444541 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (P(L)O(L)H)/E  
 LS

L6 112923 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON CA/ELS

L7 5428 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L5(L)L6

L8 QUE SPE=ON ABB=ON PLU=ON 4/ELC.SUB

L9 318 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L7 AND L8

L10 15 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L9 AND CA3

L11 286 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L9 AND CA

L12 15 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L10 AND L11

L13 2 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L12 AND "CA  
 . H O . O4 P"/MF

L14 3888 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (?HYDROXIDE?(  
 L)?PHOSPHATE?)/CHS

L15 4 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L12 AND L14

L16 580252 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON CU/ELS

L17 148 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L16(L)L7

L18 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L2 AND L17

L19 QUE SPE=ON ABB=ON PLU=ON 5/ELC.SUB

L22 14391 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L16(L)L5

L25 134 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L22(L)L8

L26 3 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L2 AND L25

L27 946628 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON FE/ELS

L28 446 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L22(L)L27

L29 16 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L28(L)L19

L30 2 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L2 AND L29

L31 426955 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON AL/ELS

L32 93759 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L16(L)L31

L33 15487 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L32(L)L19

L34 2 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L33 AND L2

L35 9 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L33 AND L14

L36 2 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L2 AND L35

L37 245550 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON ZN/ELS

L38 23200 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L37(L)L32

L39 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L2 AND L38

L40 254 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L22(L)L37

L41 34 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L40(L)L19

L42 2 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L2 AND L41

L43 176857 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON MG/ELS

L44 55 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L22(L)L43

L45 29 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L44 AND L19

L46 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L45 AND L2

L47 16 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L13 OR L15  
 OR L26 OR L18 OR L30 OR L34 OR L36 OR L39 OR L42 OR  
 L46

L48 16 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L47 AND L14

L49 108 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L48

L51 QUE SPE=ON ABB=ON PLU=ON MICRON OR MICROMET? OR .MU  
 .M OR MU(W) (M OR METER OR METRE)

L52 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L51

L53 QUE SPE=ON ABB=ON PLU=ON "PARTICLE SIZE"+ALL/CT

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L54 1 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L53  
 L56 10 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON MICRO? AND  
 L49  
 L57 105267 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON LTREQ(3A)2  
 L58 1 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L57 AND L49  
 L61 14 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L52 OR L54 OR  
 L56 OR L58  
 L62 QUE SPE=ON ABB=ON PLU=ON THERMOPLAST? OR THERM?(A)P  
 LASTIC?  
 L63 5 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L62  
 L64 QUE SPE=ON ABB=ON PLU=ON 0.001(3W)2  
 L65 0 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L64  
 L66 QUE SPE=ON ABB=ON PLU=ON SCHERRER?  
 L67 1 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L66  
 L68 QUE SPE=ON ABB=ON PLU=ON TRANSPAREN? OR CLEAR?  
 L69 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L68  
 L70 QUE SPE=ON ABB=ON PLU=ON IR OR INFRARED? IR VISIBL?  
 L71 11 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L70  
 L72 QUE SPE=ON ABB=ON PLU=ON WAVELENGTH OR NM OR NANOME  
 T? OR NANO?(A) (METER OR METRE)  
 L73 5 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND L72  
 L76 31 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L52 OR L54 OR  
 L56 OR L58 OR L61 OR L63 OR L65 OR L67 OR L69 OR L71  
 OR L73  
 L78 QUE SPE=ON ABB=ON PLU=ON PY=<2003 NOT P/DT  
 L79 QUE SPE=ON ABB=ON PLU=ON (PY=<2003 OR PRY=<2003 OR  
 AY=<2003 OR MY=<2003 OR REVIEW/DT) AND P/DT  
 L80 22 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L76 AND (L78  
 OR L79)  
 L81 86 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L49 AND (L78  
 OR L79)  
 L82 QUE SPE=ON ABB=ON PLU=ON PARTICL? OR MICROPARTICL?  
 OR PARTICULAT? OR DUST? OR GRIT? OR GRAIN# OR GRANUL? O  
 R POWDER? OR SOOT? OR SMUT? OR FINES# OR PRILL? OR FLAK  
 E# OR PELLET? OR BB#  
 L83 QUE SPE=ON ABB=ON PLU=ON SIZ?(3A)L82  
 L84 6 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L81 AND L83  
 L85 25 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L80 OR L84  
 L86 19 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON (?PHOSPHAT?(3A  
 )?HYDROX?) AND L85  
 L87 25 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L86 OR L85

## 10/580,124-337515-EIC SEARCH

TEXT SEARCH RESULTS

=&gt; d 187 1-25 ibib ed abs hitstr hitind

L87 ANSWER 1 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:493647 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:27784  
 TITLE: Production and use of thermoplastics  
 with high IR absorption  
 INVENTOR(S): Hirthe, Bernd; Foehr, Kirsten; Bier, Thorsten;  
 Saenger, Heike; Otremba, Andrea; Wedler,  
 Michael  
 PATENT ASSIGNEE(S): Sachtleben Chemie G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 24 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005052049	A1	20050609	WO 2004-EP13441	2004 1126
<--				
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10356334	A1	20050623	DE 2003-10356334	2003 1128
<--				
EP 1689810	A1	20060816	EP 2004-798094	2004 1126
<--				
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				
CN 1886450	A	20061227	CN 2004-80035153	2004 1126
<--				
BR 2004017010	A	20070221	BR 2004-17010	2004 1126
<--				
JP 2007512401	T	20070517	JP 2006-540396	2004 1126
<--				
IN 2006CN01853	A	20070223	IN 2006-CN1853	2006 0526
<--				
IN 229360	A1	20090320		

## 10/580,124-337515-EIC SEARCH

KR 2007009540 A 20070118 KR 2006-712819 2006  
0626  
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US 20070155881 A1 20070705 US 2006-580124 2006  
0718  
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PRIORITY APPLN. INFO.: DE 2003-10356334 A 2003  
1128  
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WO 2004-EP13441 W 2004  
1126

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 10 Jun 2005

AB Thermoplastics which can be readily heated by (near) IR contain phosphates of Cu, Fe, Mn, Sb, Zn, Ti, Ni, Co, V, Mg, Bi, Be, Al, Ce, Ba, Sr, Na, K, Ge, Ga, Ca, Cr, In, or Sn of specified stoichiometry and, optionally, water of crystallization Adding a solution of 100 g CuSO<sub>4</sub>·5H<sub>2</sub>O in 400 mL H<sub>2</sub>O (temperature 75-85°) continuously to 105 g Na<sub>3</sub>PO<sub>4</sub>·12H<sub>2</sub>O in 600 mL H<sub>2</sub>O (75-85°) with strong stirring and stirring at 80° for 2 h gave Cu<sub>2</sub>PO<sub>4</sub>OH (I) with a good crystalline structure. The IR absorption of PET containing I is shown as a function of wavelength.

IT 12158-74-6P, Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(IR absorbers for use in thermoplastics)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

IT 62683-60-7, Copper hydroxide phosphate (Cu<sub>5</sub>(OH)<sub>4</sub>(PO<sub>4</sub>)<sub>2</sub>) 125761-45-7, Copper hydroxide phosphate (Cu<sub>3</sub>(OH)<sub>3</sub>(PO<sub>4</sub>)) 852929-90-9, Copper iron hydroxide phosphate (CuFe<sub>2</sub>(OH)<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>)  
852929-92-1 852929-94-3 852929-96-5  
852929-98-7 852930-00-8 852930-02-0  
852930-04-2 852930-06-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(IR absorbers for use in thermoplastics)

RN 62683-60-7 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>5</sub>(OH)<sub>4</sub>(PO<sub>4</sub>)<sub>2</sub>) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	4	14280-30-9
O4P	2	14265-44-2
Cu	5	7440-50-8

RN 125761-45-7 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>3</sub>(OH)<sub>3</sub>(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	3	14280-30-9
O4P	1	14265-44-2

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Cu | 3 | 7440-50-8

RN 852929-90-9 HCAPLUS

CN Copper iron hydroxide phosphate (CuFe<sub>2</sub>(OH)<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	2	14280-30-9
O4P	2	14265-44-2
Cu	1	7440-50-8
Fe	2	7439-89-6

RN 852929-92-1 HCAPLUS

CN Aluminum copper hydroxide phosphate (Al<sub>4</sub>Cu<sub>3</sub>(OH)<sub>9</sub>(PO<sub>4</sub>)<sub>3</sub>), tetrahydrate (9CI) (CA INDEX NAME)

CM 1

CRN 852929-91-0

CMF Al . Cu . H O . O4 P

CCI TIS

CM 2

CRN 14280-30-9

CMF H O

OH-

CM 3

CRN 14265-44-2

CMF O4 P



CM 4

CRN 7440-50-8

CMF Cu

Cu

CM 5

CRN 7429-90-5

CMF Al

Al

RN 852929-94-3 HCAPLUS  
 CN Aluminum copper hydroxide phosphate (Al3Cu3(OH)3(PO4)4),  
 tetrahydrate (9CI) (CA INDEX NAME)

CM 1

CRN 852929-93-2  
 CMF Al . Cu . H O . O4 P  
 CCI TIS

CM 2

CRN 14280-30-9  
 CMF H O

OH<sup>-</sup>

CM 3

CRN 14265-44-2  
 CMF O4 P



CM 4

CRN 7440-50-8  
 CMF Cu

Cu

CM 5

CRN 7429-90-5  
 CMF Al

Al

# 10/580,124-337515-EIC SEARCH

RN 852929-96-5 HCAPLUS  
 CN Copper iron hydroxide phosphate (CuFe6(OH)8(PO4)4), tetrahydrate (9CI) (CA INDEX NAME)

CM 1

CRN 852929-95-4  
 CMF Cu . Fe . H O . O4 P  
 CCI TIS

CM 2

CRN 14280-30-9  
 CMF H O

OH<sup>-</sup>

CM 3

CRN 14265-44-2  
 CMF O4 P



CM 4

CRN 7440-50-8  
 CMF Cu

Cu

CM 5

CRN 7439-89-6  
 CMF Fe

Fe

RN 852929-98-7 HCAPLUS  
 CN Calcium copper hydroxide phosphate (CaCu6(OH)6(HPO4)(PO4)2), trihydrate (9CI) (CA INDEX NAME)

CM 1

# 10/580,124-337515-EIC SEARCH

CRN 852929-97-6  
 CMF Ca . Cu . H O4 P . H O . O4 P  
 CCI TIS

CM 2

CRN 14280-30-9  
 CMF H O

OH-

CM 3

CRN 14265-44-2  
 CMF O4 P



CM 4

CRN 14066-19-4  
 CMF H O4 P



CM 5

CRN 7440-70-2  
 CMF Ca

Ca

CM 6

CRN 7440-50-8  
 CMF Cu

Cu



# 10/580,124-337515-EIC SEARCH

RN 852930-00-8 HCAPLUS  
 CN Copper magnesium hydroxide phosphate (CuMg(OH)(PO4)), hydrate  
 (2:5) (CA INDEX NAME)

CM 1

CRN 852929-99-8  
 CMF Cu . H O . Mg . O4 P  
 CCI TIS

CM 2

CRN 14280-30-9  
 CMF H O

OH-

CM 3

CRN 14265-44-2  
 CMF O4 P



CM 4

CRN 7440-50-8  
 CMF Cu

Cu

CM 5

CRN 7439-95-4  
 CMF Mg

Mg

RN 852930-02-0 HCAPLUS  
 CN Copper zinc hydroxide phosphate (Cu0-2Zn1-3(OH)3(PO4)), dihydrate  
 (9CI) (CA INDEX NAME)

CM 1

# 10/580,124-337515-EIC SEARCH

CRN 852930-01-9  
 CMF Cu . H O . O4 P . Zn  
 CCI TIS

CM 2

CRN 14280-30-9  
 CMF H O

OH<sup>-</sup>

CM 3

CRN 14265-44-2  
 CMF O4 P



CM 4

CRN 7440-66-6  
 CMF Zn

Zn

CM 5

CRN 7440-50-8  
 CMF Cu

Cu

RN 852930-04-2 HCAPLUS  
 CN Copper zinc hydroxide phosphate (Cu0-5Zn1-6 (OH)6 (PO4)2),  
 monohydrate (9CI) (CA INDEX NAME)

CM 1

CRN 852930-03-1  
 CMF Cu . H O . O4 P . Zn  
 CCI TIS

CM 2

# 10/580,124-337515-EIC SEARCH

CRN 14280-30-9  
CMF H O

OH-

CM 3

CRN 14265-44-2  
CMF O4 P



CM 4

CRN 7440-66-6  
CMF Zn

Zn

CM 5

CRN 7440-50-8  
CMF Cu

Cu

RN 852930-06-4 HCAPLUS  
CN Aluminum copper zinc hydroxide phosphate (Al6(Cu,Zn)(OH)8(PO4)4),  
tetrahydrate (9CI) (CA INDEX NAME)

CM 1

CRN 852930-05-3  
CMF Al . Cu . H O . O4 P . Zn  
CCI TIS

CM 2

CRN 14280-30-9  
CMF H O

OH-

CM 3

CRN 14265-44-2

CMF O4 P



CM 4

CRN 7440-66-6

CMF Zn

Zn

CM 5

CRN 7440-50-8

CMF Cu

Cu

CM 6

CRN 7429-90-5

CMF Al

Al

IPCI C08K0003-00 [ICM,7]; C08K0003-04 [ICS,7]; C08G0063-00 [ICS,7]  
 IPCR C08G0063-00 [I,C\*]; C08G0063-00 [I,A]; C08K0003-00 [I,C\*];  
 C08K0003-00 [I,A]; C08K0003-04 [I,A]; C08K0003-32 [I,A]  
 CC 38-3 (Plastics Fabrication and Uses)  
 ST IR absorber use thermoplastic; PET IR  
 absorber; metal hydroxide phosphate IR  
 absorber; copper hydroxide phosphate  
 IR absorber  
 IT Polyamides, uses  
 Polycarbonates, uses  
 Polyesters, uses  
 Polyoxymylenes  
 Polythioarylenes

Polyurethanes, uses  
 RL: POF (Polymer in formulation); USES (Uses)  
 (IR absorbers for use in thermoplastics)

IT Optical materials  
 (IR absorbers; IR absorbers for use in thermoplastics)

IT IR materials  
 (absorbers; IR absorbers for use in thermoplastics)

IT Hydroxides (inorganic)  
 Phosphates, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (metal hydroxide phosphates; IR absorbers for use in thermoplastics)

IT Acetals  
 RL: POF (Polymer in formulation); USES (Uses)  
 (polyacetals, nonpolymeric; IR absorbers for use in thermoplastics)

IT Vinyl compounds, uses  
 RL: POF (Polymer in formulation); USES (Uses)  
 (polymers; IR absorbers for use in thermoplastics)

IT Plastics, uses  
 RL: POF (Polymer in formulation); USES (Uses)  
 (thermoplastics; IR absorbers for use in thermoplastics)

IT 12158-74-6P, Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (IR absorbers for use in thermoplastics)

IT 79-10-7D, Acrylic acid, esters, polymers 9003-53-6 9003-56-9, ABS 25038-59-9, uses  
 RL: POF (Polymer in formulation); USES (Uses)  
 (IR absorbers for use in thermoplastics)

IT 62863-60-7, Copper hydroxide phosphate (Cu<sub>5</sub>(OH)<sub>4</sub>(PO<sub>4</sub>)<sub>2</sub>) 125761-45-7, Copper hydroxide phosphate (Cu<sub>3</sub>(OH)<sub>3</sub>(PO<sub>4</sub>)) 852929-90-9, Copper iron hydroxide phosphate (CuFe<sub>2</sub>(OH)<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>) 852929-92-1 852929-94-3 852929-96-5 852929-98-7 852930-00-8 852930-02-0 852930-04-2 852930-06-4  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (IR absorbers for use in thermoplastics)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 2 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:541803 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 139:260756  
 TITLE: Catalytic oxidation of olefins and alcohols by molecular oxygen under air pressure over Cu<sub>2</sub>(OH)PO<sub>4</sub> and Cu<sub>4</sub>O(PO<sub>4</sub>)<sub>2</sub> catalysts  
 AUTHOR(S): Meng, Xiangju; Lin, Kaifeng; Yang, Xiaoyu; Sun, Zhenhua; Jiang, Dazhen; Xiao, Feng-Shou  
 CORPORATE SOURCE: Department of Chemistry & State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University, Changchun, 130023, Peop. Rep. China  
 SOURCE: Journal of Catalysis (2003), 218(2), 460-464  
 CODEN: JCTLA5; ISSN: 0021-9517  
 PUBLISHER: Elsevier Science  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 139:260756

## 10/580,124-337515-EIC SEARCH

ED Entered STN: 16 Jul 2003

AB Catalytic oxidation of olefins (styrene and cyclohexene) and alcs. (benzyl alc. and cyclohexanol) under air pressure by mol. oxygen over Cu<sub>2</sub>(OH)PO<sub>4</sub> and Cu<sub>4</sub>O(P<sub>4</sub>)<sub>2</sub> catalysts has been studied. The catalytic data show that these catalysts are very active in the catalytic oxidation of olefins and alcs. Adsorption of mol. oxygen on Cu<sub>2</sub>(OH)PO<sub>4</sub> and Cu<sub>4</sub>O(P<sub>4</sub>)<sub>2</sub> catalysts shows a peak at 802 cm<sup>-1</sup> in IR spectroscopy, assigned to adsorbed-oxygen species. Characterization of Cu<sub>2</sub>(OH)PO<sub>4</sub> and Cu<sub>4</sub>O(P<sub>4</sub>)<sub>2</sub> catalysts with mol. oxygen in solvent by ESR spectra shows typical signals assigned to hydroxyl radicals, which may be responsible for the high catalytic activities of the catalysts.

IT 12158-74-6, Copper hydroxide phosphate  
Cu<sub>2</sub>(OH)PO<sub>4</sub>  
RL: CAT (Catalyst use); USES (Uses)  
(catalytic oxidation of olefins and alcs. by mol. oxygen under air pressure over Cu<sub>2</sub>(OH)PO<sub>4</sub> and Cu<sub>4</sub>O(P<sub>4</sub>)<sub>2</sub> catalysts)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 21-2 (General Organic Chemistry)  
Section cross-reference(s): 24, 25

IT 12158-74-6, Copper hydroxide phosphate  
Cu<sub>2</sub>(OH)PO<sub>4</sub> 67115-40-6, Copper oxide phosphate Cu<sub>4</sub>O(P<sub>4</sub>)<sub>2</sub>  
RL: CAT (Catalyst use); USES (Uses)  
(catalytic oxidation of olefins and alcs. by mol. oxygen under air pressure over Cu<sub>2</sub>(OH)PO<sub>4</sub> and Cu<sub>4</sub>O(P<sub>4</sub>)<sub>2</sub> catalysts)

OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE  
THIS RECORD (27 CITINGS)

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L87 ANSWER 3 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2001:260089 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 135:131193

TITLE: Synthesis and Structure of Copper Hydroxyphosphate and Its High Catalytic Activity in Hydroxylation of Phenol by H<sub>2</sub>O<sub>2</sub>

AUTHOR(S): Xiao, Feng-Shou; Sun, Jianmin; Meng, Xiangju; Yu, Ranbo; Yuan, Hongming; Xu, Jianing; Song, Tianyou; Jiang, Dazhen; Xu, Ruren

CORPORATE SOURCE: Department of Chemistry and Key Laboratory of Inorganic Synthesis & Preparative Chemistry, Jilin University, Changchun, 130023, Peop. Rep. China

SOURCE: Journal of Catalysis (2001), 199(2), 273-281  
CODEN: JCTLA5; ISSN: 0021-9517

PUBLISHER: Academic Press

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 Apr 2001

AB A complex oxide of Cu<sub>2</sub>(OH)PO<sub>4</sub> has been successfully synthesized by the hydrothermal method, and its structure was investigated by x-ray anal. Furthermore, the sample was characterized by thermal anal. (DTA and TG), and these results indicated that the sample was stable below 650°. After calcination at 850°, Cu<sub>2</sub>(OH)PO<sub>4</sub> was dehydrated to form Cu<sub>4</sub>O(P<sub>4</sub>)<sub>2</sub>. The sample isotherm for N<sub>2</sub> showed that there were no micropores or mesopores, and the surface area was only at 1.4 m<sup>2</sup>/g when the particle size of the sample was 150 .nm. Moreover, when this sample was used as a catalyst for phenol hydroxylation by H<sub>2</sub>O<sub>2</sub>, the catalytic data showed high activity, which was comparable to that of TS-1. Various factors that influence this catalytic reaction, such as solvent,

## 10/580,124-337515-EIC SEARCH

temperature, time, catalyst size, catalyst amount, molar ratio of phenol to H<sub>2</sub>O<sub>2</sub>, and mode of H<sub>2</sub>O<sub>2</sub> addition, were investigated intensively. Addnl., this catalytic reaction was characterized by ESR, and it was found that on the Cu<sub>2</sub>(OH)PO<sub>4</sub> catalyst hydroxyl radicals possibly resulting from Cu<sup>2+</sup> and H<sub>2</sub>O<sub>2</sub> were important intermediates for formation of pyrocatechol and hydroquinone. (c) 2001 Academic Press.

IT 12158-74-6P, Copper hydroxide  
phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
RL: CAT (Catalyst use); PRP (Properties); RCT (Reactant); SPN  
(Synthetic preparation); PREP (Preparation); RACT (Reactant or  
reagent); USES (Uses)  
(preparation, crystal structure, dehydration and catalytic activity  
in hydroxylation of phenol by H<sub>2</sub>O<sub>2</sub>)  
RN 12158-74-6 HCAPLUS  
CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 78-5 (Inorganic Chemicals and Reactions)  
Section cross-reference(s): 67  
ST hydroxyphosphate copper prep catalyst  
hydroxylation phenol; crystal structure copper  
hydroxide phosphate; copper hydroxide  
phosphate prep structure hydroxylation  
catalyst; hydroxylation catalyst phenol copper hydroxide  
phosphate  
IT 12158-74-6P, Copper hydroxide  
phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
RL: CAT (Catalyst use); PRP (Properties); RCT (Reactant); SPN  
(Synthetic preparation); PREP (Preparation); RACT (Reactant or  
reagent); USES (Uses)  
(preparation, crystal structure, dehydration and catalytic activity  
in hydroxylation of phenol by H<sub>2</sub>O<sub>2</sub>)  
OS.CITING REF COUNT: 30 THERE ARE 30 CAPLUS RECORDS THAT CITE  
THIS RECORD (30 CITINGS)  
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L87 ANSWER 4 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2001:92252 HCAPLUS Full-text  
DOCUMENT NUMBER: 134:316633  
TITLE: A novel catalyst of copper hydroxyphosphate  
with high activity in wet oxidation of  
aromatics  
AUTHOR(S): Xiao, F.-S.; Sun, J.; Meng, X.; Yu, R.; Yuan,  
H.; Jiang, D.; Qiu, S.; Xu, R.  
CORPORATE SOURCE: Department of Chemistry & Key Laboratory of  
Inorganic Synthesis and Preparative Chemistry,  
Jilin University, Changchun, 130023, Peop.  
Rep. China  
SOURCE: Applied Catalysis, A: General (2001  
, 207(1,2), 267-271  
CODEN: ACAGE4; ISSN: 0926-860X  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
ED Entered STN: 08 Feb 2001

AB A novel catalyst of copper hydroxyphosphate (Cu<sub>2</sub>(OH)PO<sub>4</sub>) that has neither microporous nor mesoporous pores was successfully synthesized by a hydrothermal method. Catalytic data in the hydroxylation of phenol, benzene and naphthol by hydrogen peroxide showed that copper hydroxyphosphate is a very active catalyst. Comparison of various catalysts on phenol hydroxylation suggests that the unusual catalytic activity on the

Cu<sub>2</sub>(OH)PO<sub>4</sub> catalyst may be dependent on the unique structure of as-synthesized Cu<sub>2</sub>(OH)PO<sub>4</sub>. Characterization of catalytic phenol hydroxylation over Cu<sub>2</sub>(OH)PO<sub>4</sub> catalyst by ESR (ESR) gives very strong signals assigned to hydroxyl radical (•OH) species, the intensities of which are linearly related to the catalytic conversion, suggesting that hydroxyl radicals are important intermediates in the catalysis.

IT 12158-74-6, Copper hydroxide phosphate  
(Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(catalyst of copper hydroxyphosphate with high activity in wet  
oxidation of aroms.)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 67-2 (Catalysis, Reaction Kinetics, and Inorganic Reaction  
Mechanisms)

Section cross-reference(s): 25

IT 1321-67-1, Naphthol 12158-74-6, Copper  
hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(catalyst of copper hydroxyphosphate with high activity in wet  
oxidation of aroms.)

OS.CITING REF COUNT: 25 THERE ARE 25 CAPLUS RECORDS THAT CITE  
THIS RECORD (25 CITINGS)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L87 ANSWER 5 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2000:568319 HCAPLUS Full-text

DOCUMENT NUMBER: 133:257415

TITLE: A novel catalyst of copper hydroxyphosphate  
(Cu<sub>2</sub>(OH)PO<sub>4</sub>) with high activity in  
hydroxylation of phenol by hydrogen peroxide

AUTHOR(S): Xiao, Feng-Shou; Sun, Jianmin; Yu, Ranbo;  
Meng, Xiangju; Yuan, Hongming; Jiang, Dazhen;  
Xu, Ruren

CORPORATE SOURCE: Department of Chemistry, Jilin University,  
Changchun, 130023, Peop. Rep. China

SOURCE: Studies in Surface Science and Catalysis ( 2000), 130A(International Congress on  
Catalysis, 2000, Pt. A), 791-796  
CODEN: SSCITM; ISSN: 0167-2991

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 17 Aug 2000

AB A novel catalyst of copper hydroxyphosphate (Cu<sub>2</sub>(OH)PO<sub>4</sub>) that has not microporous and mesoporous pores (surface area <0.01 m<sup>2</sup>/g) has been successfully synthesized from hydrothermal method by using ethylenediamine, phosphoric acid, and copper acetate. Catalytic data in hydroxylation of phenol by hydrogen peroxide as a model reaction for oxidation catalysis showed that the copper hydroxyphosphate is very active catalyst, and its activity is even higher than that of microporous TS-1 catalyst that is known as one of the most effective catalysts. Furthermore, we observed that the Cu<sub>2</sub>(OH)PO<sub>4</sub> catalyst is readily regenerable to its active state by recalcining the expired form in air. Comparison of various catalysts suggests that the unusual catalytic activity on the Cu<sub>2</sub>(OH)PO<sub>4</sub> catalyst may be related to unique structure of as-synthesized Cu<sub>2</sub>(OH)PO<sub>4</sub>. Characterization of catalytic process by ESR method gives very strong signals associated with radical OH species, showing their possible catalytic mechanism.

IT 12158-74-6P, Copper hydroxide



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phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(catalyst of copper hydroxyphosphate (Cu<sub>2</sub>(OH)PO<sub>4</sub>) with high activity in hydroxylation of phenol by hydrogen peroxide)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 67-2 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)

Section cross-reference(s): 25

ST copper hydroxyphosphate catalyst hydroxylation phenol

IT 12158-74-6P, Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(catalyst of copper hydroxyphosphate (Cu<sub>2</sub>(OH)PO<sub>4</sub>) with high activity in hydroxylation of phenol by hydrogen peroxide)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 6 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1999:806677 HCAPLUS Full-text

DOCUMENT NUMBER: 132:187756

TITLE: Crystallization of some heavy-metal phosphates alone and in the presence of calcium ion

AUTHOR(S): Ayati, M.; Lundager Madsen, H. E.

CORPORATE SOURCE: Chemistry Department, Royal Veterinary and Agricultural University, Frederiksberg, DK-1871, Den.

SOURCE: Journal of Crystal Growth (2000), 208(1-4), 579-591

CODEN: JCRGAE; ISSN: 0022-0248

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 22 Dec 1999

AB Crystallization of Cd, Pb and Cu phosphates at 5 and 37° was studied. Cd phosphate is found exclusively as CdSH<sub>2</sub>(PO<sub>4</sub>)<sub>4</sub>·H<sub>2</sub>O. With increasing pH the morphol. changes from regular prismatic crystals to twins, aggregates and dendrites. Mixed crystals are formed with Ca substitution up to 75%. Solubility decreases with increasing Ca substitution. Lead phosphate is found mainly as PbHPO<sub>4</sub>, but at high pH Pb<sub>5</sub>OH(PO<sub>4</sub>)<sub>3</sub> is dominating as very small crystals. Those of PbHPO<sub>4</sub> are elongated tabular and rather irregular. Aggregates are frequent at low pH and highly irregular crystals otherwise. Ca reduces irregularities and aggregation. The degree of Ca substitution is lower than in the other systems studied. No effect of Ca on solubility or IR spectra was observed. The Cu system yielded Cu<sub>3</sub>(OH)3PO<sub>4</sub> and CuNH<sub>4</sub>PO<sub>4</sub> at 5°, but Cu<sub>2</sub>OHPO<sub>4</sub> at 37°. Ca increases crystal size markedly. Ca substitution at 37° ranges from 14 to 55%.

IT 12158-74-6, Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) 125761-45-7, Copper hydroxide phosphate (Cu<sub>3</sub>(OH)3(PO<sub>4</sub>))

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(crystallization of heavy-metal phosphates alone and in presence of calcium ion)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

## 10/580,124-337515-EIC SEARCH

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

RN 125761-45-7 HCAPLUS

CN Copper hydroxide phosphate (Cu3(OH)3(PO4)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	3	14280-30-9
O4P	1	14265-44-2
Cu	3	7440-50-8

CC 75-1 (Crystallography and Liquid Crystals)

IT 12158-74-6, Copper hydroxide phosphate  
 (Cu2(OH)(PO4)) 12207-55-5, Lead hydroxide  
 phosphate (Pb5(OH)(PO4)3) 15845-52-0, Lead phosphate  
 (PbHPO4) 15928-74-2, Ammonium copper phosphate ((NH4)CuPO4)  
 15955-72-3 125761-45-7, Copper hydroxide  
 phosphate (Cu3(OH)3(PO4))

RL: PEP (Physical, engineering or chemical process); PRP  
 (Properties); PROC (Process)

(crystallization of heavy-metal phosphates alone and in presence of  
 calcium ion)

OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE  
 THIS RECORD (11 CITINGS)  
 REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L87 ANSWER 7 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STM

ACCESSION NUMBER: 1998:599356 HCAPLUS Full-text

DOCUMENT NUMBER: 129:218031

ORIGINAL REFERENCE NO.: 129:44287a,44290a

TITLE: High-solid infrared absorbing coating  
compositionsINVENTOR(S): Chiang, Chwan-hwa Peter; Dawson, William  
Roland; Kinney, Layton Fredrick; Sherman,  
Charles J.

PATENT ASSIGNEE(S): The Sherwin-Williams Co., USA

SOURCE: U.S., 8 pp., Division of U. S. Ser. No.  
797,261.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5800861	A	19980901	US 1988-288713	1988 1228
				<--
PRIORITY APPLN. INFO.:			US 1985-766158	A2 1985 0815
				<--
			US 1985-797261	A3 1985 1112
				<--

## 10/580,124-337515-EIC SEARCH

ED Entered STN: 22 Sep 1998

AB Title compns. with low gloss and low reflectance of electromagnetic radiation in the near IR region (0.7-2.5  $\mu$ m wavelength), comprise 5-50 parts volatile solvent portion containing  $\geq 1$  inert organic solvent and 50-95 parts nonvolatile portion containing (a)  $\geq 1$  active-hydrogen functional polymer with number average mol. weight <6000 (e.g., polycaprolactone polyol), (b) polymeric beads dispersed within the polymer, (c)  $\geq 1$  IR radiation absorbing pigment selected from copper phosphate, basic copper phosphate, copper pyrophosphate and tungsten trioxide, which is incorporated in the polymeric beads, and (d) a crosslinking agent (e.g. polyisocyanate).

IT 53572-65-9P, Calcium hydroxide phosphate (Ca3(OH)3(PO4))  
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use);  
 PRP (Properties); PREP (Preparation); USES (Uses)  
 (IR absorbing pigment; high-solid IR absorbing coating compns.)

RN 53572-65-9 HCAPLUS

CN Calcium hydroxide phosphate (Ca3(OH)3(PO4)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	3	14280-30-9
O4P	1	14265-44-2
Ca	3	7440-70-2

INCL 427160000

IPCI B05D0005-06 [ICM,6]; C08K0003-32 [ICS,6]; C08K0003-00 [ICS,6,C\*]

IPCR C09D0005-32 [I,C\*]; C09D0005-32 [I,A]

NCL 427/160.000; 252/587.000; 252/600.000; 427/385.500; 427/393.500;  
 521/062.000; 521/067.000; 521/076.000; 523/135.000

CC 42-10 (Coatings, Inks, and Related Products)

ST coating compn solid IR absorbing; polyurethane pigmented polyester styrene bead coating; copper phosphate IR absorbing pigment; pyrophosphate copper pigment coating gloss; tungsten trioxide pigment coating reflectance

IT Pigments, nonbiological  
 (IR absorbing; high-solid IR absorbing coating compns.)

IT Polyesters, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (beads; high-solid IR absorbing coating compns.)

IT Coating materials  
 (high-solids; high-solid IR absorbing coating compns.)

IT Polyurethanes, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-; high-solid IR absorbing coating compns.)

IT Polyurethanes, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-polyether-; high-solid IR absorbing coating compns.)

IT Polyurethanes, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-; high-solid IR absorbing coating compns.)

IT Polyesters, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

## 10/580,124-337515-EIC SEARCH

(unsatd., polymers with styrene; high-solid IR  
absorbing coating comps.)

IT 53572-65-9F, Calcium hydroxide  
phosphate (Ca3(OH)3(PO4))  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use);  
PRP (Properties); PREP (Preparation); USES (Uses)  
(IR absorbing pigment; high-solid IR  
absorbing coating comps.)

IT 1314-35-8, Tungsten trioxide, uses 10102-90-6, Copper  
pyrophosphate 30981-48-7, Copper phosphate  
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(IR absorbing pigment; high-solid IR  
absorbing coating comps.)

IT 32912-59-7P, Fumaric acid-phthalic anhydride-propylene  
glycol-styrene copolymer 212383-71-6P 212383-72-7P  
RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
PRP (Properties); TEM (Technical or engineered material use); PREP  
(Preparation); USES (Uses)  
(Beads; high-solid IR absorbing coating comps.)

IT 100-42-5DP, polymers with unsatd. polyesters 116039-09-9P  
212254-58-5P 212254-59-6P 212254-60-9P 212254-61-0P  
212254-62-1P  
RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
PRP (Properties); TEM (Technical or engineered material use); PREP  
(Preparation); USES (Uses)  
(high-solid IR absorbing coating comps.)

IT 497-19-8, Sodium carbonate, reactions 7664-38-2, Phosphoric  
acid, reactions 7758-99-8, Cupric sulfate pentahydrate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of IR absorbing pigment for high-solid  
coating comps.)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
THIS RECORD (1 CITINGS)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L87 ANSWER 8 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1998:300550 HCAPLUS Full-text  
DOCUMENT NUMBER: 129:10690  
ORIGINAL REFERENCE NO.: 129:2227a  
TITLE: Laser imaging element  
INVENTOR(S): Lambert, Patrick M.; Trauernicht, David P.;  
Bringley, Joseph F.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: U.S., 9 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5750318	A	19980512	US 1996-767054	1996 1216
			<--	
PRIORITY APPLN. INFO.:			US 1996-767054	1996 1216
			<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 22 May 1998

AB A laser thermal recording element comprises a support having thereon a pigment layer  
comprising a pigment dispersed in a polymeric binder, the pigment absorbing at the

## 10/580,124-337515-EIC SEARCH

wavelength of a laser used to expose the element, wherein the pigment comprises the formula  $\text{Cu}_2\text{-xMx(OH)yRz:M'w}$  wherein M is at least one metal atom; M' is at least one alkali metal; R is at least one anion; w is between 0 and 2; x is between 0 and 1.5; y and z are selected to maintain charge neutrality, with the proviso that w, x and z cannot all be 0.

IT 12158-74-6, Copper hydroxide phosphate  
(Cu2(OH)(PO4))  
RL: TEM (Technical or engineered material use); USES (Uses)  
(laser thermal recording materials containing)  
RN 12158-74-6 HCAPLUS  
CN Copper hydroxide phosphate (Cu2(OH)(PO4)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

INCL 430346000  
IPCI G03C0001-494 [ICM,6]; G03C0001-705 [ICS,6]; G03C0001-67 [ICS,6];  
G03C0001-64 [ICS,6]  
IPCR B41M0005-26 [I,C\*]; B41M0005-26 [I,A]  
NCL 430/346.000; 430/270.160; 430/495.100; 430/541.000; 430/616.000;  
430/944.000; 430/964.000; 524/403.000; 524/406.000; 524/413.000  
CC 74-7 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
IT 12158-74-6, Copper hydroxide phosphate  
(Cu2(OH)(PO4)) 66431-13-8 207505-80-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(laser thermal recording materials containing)  
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE  
THIS RECORD (2 CITINGS)  
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L87 ANSWER 9 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:270596 HCAPLUS Full-text  
DOCUMENT NUMBER: 126:252333  
ORIGINAL REFERENCE NO.: 126:48765a,48768a  
TITLE: Using laser-inscribable labels for marking  
rubber parts, especially tires  
INVENTOR(S): Koops, Arne; Ofer, Ulrich; Kuelper, Klaus;  
Kreft, Christian  
PATENT ASSIGNEE(S): Beiersdorf A.-G., Germany  
SOURCE: Ger. Offen., 8 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19531332	A1	19970227	DE 1995-19531332	1995 0825
EP 760297	A2	19970305	EP 1996-112586	1996 0803
EP 760297	A3	19970611		
EP 760297	B1	19991201		

R: DE, ES, FR, GB, IT, SE

## 10/580,124-337515-EIC SEARCH

ES 2140767 T3 20000301 ES 1996-112586 1996  
0803  
JP 09068924 A 19970311 JP 1996-235765 1996  
0820  
PRIORITY APPLN. INFO.: DE 1995-19531332 A 1995  
0825

ED Entered STN: 28 Apr 1997  
AB Labels such as barcode labels comprise a carrier layer based on a vulcanizable light-colored rubber composition containing an additive that changes color in laser light (such as Cu(II) hydroxide phosphate or coated pearlescent pigment), which is vulcanizable along with the rubber part. The carrier layer is optionally covered with a protective layer transparent to visible and IR radiation, a pressure-sensitive adhesive layer for temporary bonding of the label to the rubber part before vulcanization, and a release sheet on the adhesive layer. All the sides of the carrier layer except the side to be irradiated with the laser may be coated with a barrier layer to prevent migration of plasticizers and similar materials out of the label.  
IT 12158-74-6, Copper hydroxide phosphate  
(Cu2(OH)(PO4))  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(laser-sensitive compound; using laser-inscribable vulcanizable labels for marking rubber parts, especially tires)  
RN 12158-74-6 HCAPLUS  
CN Copper hydroxide phosphate (Cu2(OH)(PO4)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

IPCI G09F0003-02 [ICM,6]; G09F0003-04 [ICS,6]; B60C0001-00 [ICA,6];  
C08J0003-24 [ICA,6]; C08J0007-00 [ICA,6]; C08L0009-06 [ICI,6];  
C08L0009-00 [ICI,6,C\*]; C08L0023-16 [ICI,6]; C08L0023-22 [ICI,6];  
C08L0023-00 [ICI,6,C\*]; B32B0025-08 [ICA,6]; B32B0025-00  
[ICA,6,C\*]; B32B0027-36 [ICA,6]; B32B0027-34 [ICA,6]; B32B0027-32  
[ICA,6]  
IPCR B60C0019-00 [I,C\*]; B60C0019-00 [I,A]; B32B0025-00 [I,C\*];  
B32B0025-04 [I,A]; B32B0025-08 [I,A]; B60C0013-00 [I,C\*];  
B60C0013-00 [I,A]; B65C0003-00 [I,C\*]; B65C0003-26 [I,A];  
G09F0003-00 [I,C\*]; G09F0003-00 [I,A]; G09F0003-02 [I,C\*];  
G09F0003-02 [I,A]; G09F0003-04 [I,C\*]; G09F0003-04 [I,A]  
CC 39-13 (Synthetic Elastomers and Natural Rubber)  
ST laser inscribable vulcanizable barcode label tire; pearlescent  
pigment label tire; copper hydroxide phosphate  
contg label tire  
IT 12158-74-6, Copper hydroxide phosphate  
(Cu2(OH)(PO4))  
RL: MOA (Modifier or additive use); TEM (Technical or engineered  
material use); USES (Uses)  
(laser-sensitive compound; using laser-inscribable vulcanizable  
labels for marking rubber parts, especially tires)  
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE  
THIS RECORD (2 CITINGS)  
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L87 ANSWER 10 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 1997:124379 HCAPLUS Full-text

## 10/580,124-337515-EIC SEARCH

DOCUMENT NUMBER: 126:132208  
 ORIGINAL REFERENCE NO.: 126:25541a,25544a  
 TITLE: Coated pigments as fillers for laser-markable plastics  
 INVENTOR(S): Schmidt, Christoph; Reynders, Peter; Schoen, Sabine  
 PATENT ASSIGNEE(S): Merck Patent GmbH, Germany  
 SOURCE: Eur. Pat. Appl., 6 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
EP 750012	A1	19961227	EP 1996-109256	1996 0610
			<--	
R: DE, ES, FI, FR, GB, IT				
DE 19522397	A1	19970102	DE 1995-19522397	1995 0623
			<--	
BR 9602842	A	19980422	BR 1996-2842	1996 0619
			<--	
CA 2179698	A1	19961224	CA 1996-2179698	1996 0621
			<--	
JP 09012776	A	19970114	JP 1996-179860	1996 0621
			<--	
CN 1144230	A	19970305	CN 1996-108795	1996 0621
			<--	
US 5928780	A	19990727	US 1996-668146	1996 0621
			<--	
TW 383323	B	20000301	TW 1996-85107482	1996 0621
			<--	
PRIORITY APPLN. INFO.:			DE 1995-19522397 A	1995 0623

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
 ED Entered STIN: 24 Feb 1997

AB Plastics which can be marked by lasers with high contrast are filled with non-glossy, layered silicate pigments, having rough surfaces, which are coated with oxides, Iron Blue, and/or basic Cu phosphate. Dry-milled mica (95% with average diameter <24 µm) was coated with 50% Turnbull's Blue by precipitation in H2O. Polypropylene containing 0.5% this mica gave injection moldings which could be marked by a CO2 laser (energy d. approx. 3 J/cm2) with high contrast.

IT 12158-74-6, Copper hydroxide phosphate (Cu2(OH)(PO4))

RL: TEM (Technical or engineered material use); USES (Uses)  
 (coating; coated pigments as fillers for laser-markable

## 10/580,124-337515-EIC SEARCH

plastics)  
 RN 12158-74-6 HCAPLUS  
 CN Copper hydroxide phosphate (Cu2(OH)(PO4)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

IPCI C08K0009-02 [ICM,6]; C08K0009-00 [ICM,6,C\*]  
 IPCR B41M0005-00 [I,C\*]; B41M0005-00 [I,A]; B41M0005-26 [I,C\*];  
 B41M0005-26 [I,A]; C08K0003-00 [I,C\*]; C08K0003-10 [I,A];  
 C08K0003-32 [I,A]; C08K0003-34 [I,A]; C08K0009-00 [I,C\*];  
 C08K0009-00 [I,A]; C08K0009-02 [I,A]; C08L0023-00 [I,C\*];  
 C08L0023-00 [I,A]; C08L0023-02 [I,A]; C08L0101-00 [I,C\*];  
 C08L0101-00 [I,A]; C09C0001-28 [I,C\*]; C09C0001-28 [I,A]  
 CC 37-6 (Plastics Manufacture and Processing)  
 IT 1309-64-4, Antimony oxide (Sb2O3), uses 1310-39-0,  
 Pseudobrookite 12158-74-6, Copper hydroxide  
 phosphate (Cu2(OH)(PO4)) 13463-67-7, Titanium dioxide,  
 uses 18282-10-5, Tin dioxide 65505-26-2, C.I. Pigment Green 16  
 RI: TEM (Technical or engineered material use); USES (Uses)  
 (coating; coated pigments as fillers for laser-markable  
 plastics)  
 OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE  
 THIS RECORD (6 CITINGS)

L87 ANSWER 11 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 ACCESSION NUMBER: 1996:365490 HCAPLUS Full-text  
 DOCUMENT NUMBER: 125:45171  
 ORIGINAL REFERENCE NO.: 125:8495a,8498a  
 TITLE: Method for marking molded bodies using copper  
 phosphate as additive  
 INVENTOR(S): Weiz, Martin; Prissok, Frank  
 PATENT ASSIGNEE(S): Elastogran GmbH, Germany  
 SOURCE: Eur. Pat. Appl., 10 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 706897	A1	19960417	EP 1995-115822	1995 1007
EP 706897	B1	19970917		
R: BE, DE, FR, GB, NL				
DE 4436897	A1	19960418	DE 1994-4436897	1994 1015
US 5630979	A	19970520	US 1995-542186	1995 1012
PRIORITY APPLN. INFO.:			DE 1994-4436897	A 1994 1015

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
 ED Entered STN: 25 Jun 1996



## 10/580,124-337515-EIC SEARCH

AB The title method involves a process for adding Cu phosphate additives to a thermoplastic polyurethane elastomer or its  $\leq 45\%$  mixture for improving inscribe-ability and a process for UV laser-irradiation The method provided molded bodies with high contrast, good contour shape and good abrasion-resistance.

IT 12158-74-6, Copper hydroxide phosphate  
(Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) 125761-45-7, Copper hydroxide phosphate (Cu<sub>3</sub>(OH)<sub>3</sub>(PO<sub>4</sub>))  
RL: MOA (Modifier or additive use); USES (Uses)  
(additive to photosensitive layer for making molded bodies)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

RN 125761-45-7 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>3</sub>(OH)<sub>3</sub>(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	3	14280-30-9
O4P	1	14265-44-2
Cu	3	7440-50-8

IPCI B41M0001-30 [ICM,6]; B41M0001-26 [ICM,6,C\*]; C08K0003-32 [ICS,6]; C08K0003-00 [ICS,6,C\*]

IPCR B41M0005-26 [I,C\*]; B41M0005-26 [I,A]; C08K0003-00 [I,C\*]; C08K0003-32 [I,A]

CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38

ST thermoplastic polyurethane elastomer copper phosphate additive

IT 7631-86-9, Silica, uses 12158-74-6, Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) 13463-67-7, Titanium dioxide, uses 18282-10-5, Tin oxide (SnO<sub>2</sub>) 125761-45-7, Copper hydroxide phosphate (Cu<sub>3</sub>(OH)<sub>3</sub>(PO<sub>4</sub>)) 177969-12-9  
RL: MOA (Modifier or additive use); USES (Uses)  
(additive to photosensitive layer for making molded bodies)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L87 ANSWER 12 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1995:761391 HCAPLUS Full-text

DOCUMENT NUMBER: 123:339085

ORIGINAL REFERENCE NO.: 123:60859a,60862a

TITLE: Laser-stimulated oxidative coupling of ethanol

AUTHOR(S): Kang, Qinghua; Zhong, Shunhe

CORPORATE SOURCE: Department Chemical Engineering, Tianjin

University, Tianjin, 300072, Peop. Rep. China

SOURCE: Yingyong Huaxue (1995), 12(3), 18-22

CODEN: YIHUED; ISSN: 1000-0518

Yingyong Huaxue Bianji Weiyuanhui

PUBLISHER: Journal

DOCUMENT TYPE: Chinese

LANGUAGE: Chinese

ED Entered STN: 26 Aug 1995

AB The oxidative coupling of ethanol stimulated by CO<sub>2</sub> laser on the surface of Cu<sub>2</sub>(PO<sub>4</sub>)(OH) and Pb<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> has been studied using XRD and IR techniques. The results showed that the distribution of reaction products depends strongly on the chemisorption types of ethanol. 1,4-Butanediol was formed via the methyl-adsorbed ethanol mols.,

## 10/580,124-337515-EIC SEARCH

while the hydroxyl-adsorbed one gave ethene. The vibrational structures of the surface of solid materials are the basic factor affecting the efficiency of laser photon energy. The higher efficiency of laser photon energy in the case of libethenite appeared due to the greater difference in frequencies between P=O and O-Cu-O bonds.

IT 12158-74-6, Copper hydroxide phosphate  
(Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(laser-stimulated oxidative coupling of ethanol)  
RN 12158-74-6 HCAPLUS  
CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 23-7 (Aliphatic Compounds)

Section cross-reference(s): 67

IT 7446-27-7, Lead phosphate 12158-74-6, Copper  
hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(laser-stimulated oxidative coupling of ethanol)

L87 ANSWER 13 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1995:644189 HCAPLUS Full-text

DOCUMENT NUMBER: 123:313172

ORIGINAL REFERENCE NO.: 123:56122h,56123a

TITLE: Mechanism of laser-stimulated surface reaction  
of ethanol oxidative coupling

AUTHOR(S): Kang, Qinghua; Zhong, Shunhe

CORPORATE SOURCE: Dep. Chemical Engineering, Tianjing Univ.,  
Tianjin, 300072, Peop. Rep. China

SOURCE: Wuli Huaxue Xuebao (1995), 11(6),  
498-503

CODEN: WHXUEU; ISSN: 1000-6818

PUBLISHER: Beijing Daxue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

ED Entered STN: 29 Jun 1995

AB IR spectroscopy, XRD and pulse CO<sub>2</sub> laser techniques were employed to investigate the behaviors of laser stimulated surface reaction (LSSR) of ethanol oxidative coupling to give 1,4-butanediol (I) upon the surface of Cu<sub>2</sub>(PO<sub>4</sub>)(OH) which was prepared by the precipitation method. A reaction mechanism on this solid surface and a model of energy transfer and relaxation in such a process are proposed on the basis of the exptl. results. Under the conditions of atmospheric pressure and 200° with 1079 cm<sup>-1</sup> laser photon exciting the surface of Cu<sub>2</sub>(PO<sub>4</sub>)(OH) for 1000 times, the EtOH conversion was over 12% and the product was solely I. The vibrational excitation of the solid surface bonds was proved to be an effective mode for LSSR. The surface lattice oxygen of the solid material plays an important role in the Me dehydrogenation of EtOH oxidative coupling reaction, and the high selectivity of reaction product depends mainly on the special chemisorption state of EtOH, methyl-adsorbed type. With respect to the course of LSSR, it is likely that when the 1079 cm<sup>-1</sup> laser photon excites the surface P=O bond selectively and activates its surface oxygen, the energy transfers immediately to the Me C-H bond and activates it in the methyl-adsorbed ethanol mol. by v-v energy transfer and relaxation, then the adsorbed EtOH mol. dehydrogenates and couples to form I.

IT 12158-74-6, Copper hydroxide phosphate  
(Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)  
(mechanism of laser-stimulated surface reaction of ethanol  
oxidative coupling)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number

## 10/580,124-337515-EIC SEARCH

Component	Ratio	Component
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 22-4 (Physical Organic Chemistry)  
 IT 12158-74-6, Copper hydroxide phosphate  
 (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))  
 RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)  
 (mechanism of laser-stimulated surface reaction of ethanol  
 oxidative coupling)

L87 ANSWER 14 OF 25 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1995:483137 HCAPLUS Full-text

DOCUMENT NUMBER: 123:131195

ORIGINAL REFERENCE NO.: 123:22995a,22998a

TITLE: Effect of pH and anions on hydroxyapatite-Cu<sup>2+</sup>  
 solid-liquid interactions

AUTHOR(S): Lusvardi, Gigliola; Menabue Ledi; Saladini,  
 Monica; Spaggiari, Marco

CORPORATE SOURCE: Dip. chim., Univ. Modena, Modena, 41100, Italy  
 SOURCE: Journal of Materials Chemistry (1995  
 ), 5(3), 493-7

CODEN: JMACEP; ISSN: 0959-9428  
 Royal Society of Chemistry

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 Apr 1995

AB The reaction of synthetic Ca<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>OH (HAP) with Cu<sup>2+</sup> ions was studied by pH, pCu and  
 pCa measurements as a function of the time, pH and electrolyte type (NaCl, NaHCO<sub>3</sub>,  
 Na<sub>2</sub>HPO<sub>4</sub>). The solid phases after different reaction times were studied with XRD and IR  
 techniques. The Cu<sup>2+</sup> does not form mixed compds. with Ca<sup>2+</sup> and does not replace Ca<sup>2+</sup>  
 in the HAP structure. The presence, in an appropriate concentration, of anions which  
 form very insol. Cu<sup>2+</sup> compds. favors the precipitation of the latter with no  
 involvement of HAP. If the concentration of the anions is low, the precipitation of  
 Cu<sup>2+</sup> also involves HAP and this behavior is particularly enhanced with Na<sub>2</sub>HPO<sub>4</sub>.

IT 12158-74-6, Copper hydroxide phosphate  
 (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: FMU (Formation, unclassified); FORM (Formation,  
 nonpreparative)  
 (formation from calcium hydroxide phosphate  
 and cupric ion)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 78-9 (Inorganic Chemicals and Reactions)

ST calcium hydroxide phosphate reaction cupric;  
 hydroxyapatite reaction cupric

IT 7447-39-4, Cupric chloride, reactions 12167-74-7, Calcium  
 hydroxide phosphate (Ca<sub>5</sub>(OH)(PO<sub>4</sub>)<sub>3</sub>)

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (Effect of pH and anions on hydroxyapatite-Cu<sup>2+</sup> solid-liquid  
 interactions)

IT 1332-65-6, Copper chloride hydroxide (Cu<sub>2</sub>Cl(OH)<sub>3</sub>) 7798-23-4,  
 Copper phosphate (Cu<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>) 12069-69-1 12158-74-6,  
 Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: FMU (Formation, unclassified); FORM (Formation,  
 nonpreparative)  
 (formation from calcium hydroxide phosphate  
 and cupric ion)

## 10/580,124-337515-EIC SEARCH

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L87 ANSWER 15 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 ACCESSION NUMBER: 1993:685160 HCAPLUS Full-text  
 DOCUMENT NUMBER: 119:285160  
 ORIGINAL REFERENCE NO.: 119:50767a,50770a  
 TITLE: Effect of copper(2+) ion on the structural stability of synthetic hydroxyapatite  
 AUTHOR(S): Bruckner, Sergio; Lusvardi, Gigliola; Menabue, Ledi; Saladini, Monica  
 CORPORATE SOURCE: Dip. Chim., Univ. Modena, Modena, 41100, Italy  
 SOURCE: Journal of Materials Chemistry (1993), 3(7), 715-19  
 CODEN: JMACEP; ISSN: 0959-9428  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 25 Dec 1993

AB The reaction of synthetic hydroxyapatite,  $\text{Ca}_5(\text{PO}_4)_3\text{OH}$  (HAP), with  $\text{Cu}^{2+}$  ions is studied by pH, pCu and pCa measurements as a function of the time and temperature (30, 40, 45 and 60°) and at different  $\text{Cu}^{2+}:\text{Ca}^{2+}$  molar ratios 0.01-1.07. The solid phases separated after different times of reaction were studied with XRD and IR techniques. The  $\text{Cu}^{2+}$  ions give rise to an acidic solution and promote HAP dissoln.; HAP does not incorporate the  $\text{Cu}^{2+}$  ions and a new phase corresponding to the mineral  $\text{Cu}_2(\text{PO}_4)_2\text{OH}$  (Libethenite) crystallizes quant. In the reaction with the ratio  $\text{Cu}^{2+}:\text{Ca}^{2+}$  0.1-1, the pH decreases owing to the release of  $\text{H}_3\text{PO}_4$ , whereas it increases for the ratio 0.01. At physiol. ionic strength, obtained with NaCl, the solid phase containing Cu is again libethenite, but the process is notably accelerated.

IT 12158-74-6P, Copper hydroxide phosphate ( $\text{Cu}_2(\text{OH})(\text{PO}_4)$ )  
 RL: FORM (Formation, nonpreparative); PREP (Preparation) (formation of, from copper(II) and synthetic hydroxyapatite in aqueous solution)

RN 12158-74-6 HCAPLUS  
 CN Copper hydroxide phosphate ( $\text{Cu}_2(\text{OH})(\text{PO}_4)$ ) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

CC 78-9 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 14

ST copper 2 reaction hydroxyapatite; calcium hydroxide phosphate reaction cupric ion

IT 12158-74-6P, Copper hydroxide phosphate ( $\text{Cu}_2(\text{OH})(\text{PO}_4)$ )

RL: FORM (Formation, nonpreparative); PREP (Preparation) (formation of, from copper(II) and synthetic hydroxyapatite in aqueous solution)

IT 12167-74-7, Calcium hydroxide phosphate ( $\text{Ca}_5(\text{OH})(\text{PO}_4)_3$ )

RL: RCT (Reactant); RACT (Reactant or reagent) (reaction of, with copper(II) in aqueous solution)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L87 ANSWER 16 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 ACCESSION NUMBER: 1992:106916 HCAPLUS Full-text  
 DOCUMENT NUMBER: 116:106916  
 ORIGINAL REFERENCE NO.: 116:18131a,18134a  
 TITLE: Synthesis of  $\alpha$ -methylstyrene-styrene-acrylonitrile copolymer

## 10/580,124-337515-EIC SEARCH

AUTHOR(S): Guo, Xiuchun  
 CORPORATE SOURCE: Chem. Eng. Plant, Shanghai Gaoqiao Petrochem.  
 Co., Shanghai, 200137, Peop. Rep. China  
 SOURCE: Gaofenzi Cailiao Kexue Yu Gongcheng (1991), 7(1), 122-6  
 CODEN: GCRGEI; ISSN: 1000-7555

DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese  
 ED Entered STN: 20 Mar 1992

AB The title copolymer was prepared by suspension polymerization of  $\alpha$ -methylstyrene (I) with styrene (II) and acrylonitrile (III) using  $\text{Ca}_3(\text{PO}_4)_2 \cdot \text{Ca}(\text{OH})_2$ -II-maleic anhydride copolymer sodium salt as dispersing agents. The particle size and its distribution of the copolymer decreased with reducing the particle size of  $\text{Ca}(\text{PO}_4)_2 \cdot \text{Ca}(\text{OH})_2$  and with increasing concentration of the dispersing agent system. The glass temperature of the copolymer increased while the impact strength decreased with increasing I content. The suitable content of II and III for the copolymer was 20-30 weight% and 20-35 weight%, resp.

IT 12049-64-8, Calcium hydroxide phosphate ( $\text{Ca}_2(\text{OH})(\text{PO}_4)$ )  
 RL: USES (Uses)  
 (dispersing agents, containing maleic anhydride-styrene copolymer sodium salt, for suspension polymerization of acrylonitrile with methylstyrene and styrene)

RN 12049-64-8 HCAPLUS

CN Calcium hydroxide phosphate ( $\text{Ca}_2(\text{OH})(\text{PO}_4)$ ) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Ca	2	7440-70-2

CC 35-4 (Chemistry of Synthetic High Polymers)

ST methylstyrene styrene acrylonitrile copolymer; suspension polymn methylstyrene styrene acrylonitrile; dispersing agent suspension polymn methylstyrene; hydroxy calcium phosphate  
 dispersing agent; maleic anhydride copolymer dispersing agent

IT Dispersing agents  
 (calcium hydroxide phosphate-maleic anhydride-styrene copolymer sodium salt, for suspension polymerization of acrylonitrile with methylstyrene and styrene)

IT 12049-64-8, Calcium hydroxide phosphate ( $\text{Ca}_2(\text{OH})(\text{PO}_4)$ )  
 RL: USES (Uses)  
 (dispersing agents, containing maleic anhydride-styrene copolymer sodium salt, for suspension polymerization of acrylonitrile with methylstyrene and styrene)

IT 25736-61-2, Maleic anhydride-styrene copolymer sodium salt  
 RL: USES (Uses)  
 (dispersing agents, contg. calcium hydroxide phosphate, for suspension polymerization of acrylonitrile with methylstyrene and styrene)

IT 9010-96-2P, Acrylonitrile- $\alpha$ -methylstyrene-styrene copolymer  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, by suspension polymerization in presence of calcium hydroxide phosphate-maleic anhydride-styrene copolymer sodium salt dispersing agents)

L87 ANSWER 17 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 ACCESSION NUMBER: 1991:144815 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 114:144815  
 ORIGINAL REFERENCE NO.: 114:24579a, 24582a  
 TITLE: Polymers which can be marked with laser light  
 INVENTOR(S): Schueler, Ralf; Herkt-Maetzky, Christian;  
 Bartz, Wilfred

## 10/580,124-337515-EIC SEARCH

PATENT ASSIGNEE(S): Huels A.-G., Germany  
 SOURCE: Ger. Offen., 4 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3917294	A1	19901129	DE 1989-3917294	1989 0527
US 5053440	A	19911001	US 1990-504840	1990 0405
EP 400305	A2	19901205	EP 1990-106763	1990 0409
EP 400305	A3	19910911		
EP 400305	B1	19960710		
EP 400305	B2	20010321		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
AT 140189	T	19960715	AT 1990-106763	1990 0409
ES 2088917	T3	19961001	ES 1990-106763	1990 0409
CA 2017545	A1	19901127	CA 1990-2017545	1990 0525
CA 2017545	C	20010918		
BR 9002465	A	19910813	BR 1990-2465	1990 0525
KR 162082	B1	19990115	KR 1990-7588	1990 0525
JP 03024161	A	19910201	JP 1990-135536	1990 0528
JP 2947878	B2	19990913		
PRIORITY APPLN. INFO.:			DE 1989-3917294	A 1989 0527

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 19 Apr 1991

AB The title polymers, which can be marked until a predetd. min. value of contrast is achieved, contain 0.2-5% additive having little or no color at 400-750 nm but giving markings with high contrast when exposed to laser light outside of the visible spectrum. Poly(butylene terephthalate) containing 1 phr Cu<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>·Cu(OH)<sub>2</sub> was exposed to 100 J/cm<sup>2</sup> pulsed laser light (1064 nm, 20 W, pulse frequency 8 kHz) to give markings with contrast 7.6.

IT 12158-74-6, Copper hydroxide phosphate  
 (Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

## 10/580,124-337515-EIC SEARCH

RL: USES (Uses)

(plastics containing, for laser marking with high contrast)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

IPCI C08K0011-00 [ICM,5]; C08K0003-32 [ICS,5]; C08K0003-22 [ICS,5];  
 B44C0001-02 [ICS,5]; B44C0001-00 [ICS,5,C\*]; C08K0003-00 [ICI,5];  
 C08L0067-02 [ICI,5]; C08L0067-00 [ICI,5,C\*]; C08L0023-06 [ICI,5];  
 C08L0023-12 [ICI,5]; C08L0023-00 [ICI,5,C\*]; C08L0025-06 [ICI,5];  
 C08L0025-00 [ICI,5,C\*]; C08L0077-00 [ICI,5]; C08J0007-00 [ICA,5];  
 B29C0071-04 [ICA,5]; B29C0071-00 [ICA,5,C\*]  
 IPCR C08K0003-00 [I,A]; B41M0005-24 [I,C\*]; B41M0005-24 [I,A];  
 B41M0005-26 [I,C\*]; B41M0005-26 [I,A]; C08K0003-00 [I,C\*];  
 C08K0003-22 [I,A]; C08K0003-32 [I,A]; C08L0101-00 [I,C\*];  
 C08L0101-00 [I,A]  
 CC 37-6 (Plastics Manufacture and Processing)  
 IT 1309-37-1, Iron oxide (Fe<sub>2</sub>O<sub>3</sub>), uses and miscellaneous 1313-27-5,  
 Molybdenum trioxide, uses and miscellaneous 8007-18-9, Titanate  
 yellow 12158-74-6, Copper hydroxide  
 phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) 13463-67-7, Titanium oxide  
 (TiO<sub>2</sub>), uses and miscellaneous

RL: USES (Uses)

(plastics containing, for laser marking with high contrast)

OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE  
 THIS RECORD (11 CITINGS)  
 REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L87 ANSWER 18 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1990:54309 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 112:54309

ORIGINAL REFERENCE NO.: 112:9329a,9332a

TITLE: Agrochemical basis for the inclusion of  
 mineral fertilizers with trace elements in a  
 range of microfertilizers. Part 2.  
 Interaction of copper and phosphorus in  
 fertilizers

AUTHOR(S): Potatueva, Yu. A.; Yanchuk, I. A.; Sointseva,  
 I. I.

CORPORATE SOURCE: NIUIF, Moscow, USSR

SOURCE: Agrokhimiya (1989), (10), 86-95

CODEN: AGKYAU; ISSN: 0002-1881

DOCUMENT TYPE: Journal

LANGUAGE: Russian

ED Entered STN: 17 Feb 1990

AB Adding 2.5 mg Ca(H<sub>2</sub>PO<sub>4</sub>)<sub>2</sub>/30 g peat, sod-podzolic, and Sierozem soils decreased  
 percolation of 3 mg CuSO<sub>4</sub>-Cu/1.6 kg soil, as determined after a 3-day inoculation, to  
 43, 70, and 59%, resp., of CuSO<sub>4</sub>-treated controls not treated with the phosphate.  
 Adding CuSO<sub>4</sub> to ammophos before H<sub>3</sub>PO<sub>4</sub> neutralization with NH<sub>3</sub> or during granulation led  
 to (NH<sub>4</sub>)H<sub>2</sub>PO<sub>4</sub> reaction with Cu forming crystalline Cu<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>·3H<sub>2</sub>O of a low water  
 solubility. CuSO<sub>4</sub> reacted with a fertilizer comprising CaHPO<sub>4</sub>·2H<sub>2</sub>O + CaHPO<sub>4</sub> + Fe, Mg,  
 K, and Al phosphates + gypsum + SiO<sub>2</sub> forming insol. Cu<sub>2</sub>(OH)PO<sub>4</sub>. Cu contained in the  
 water-insol. fraction of ammophos failed to increase the yield of potted barley grain  
 above that obtained from the insol. ammophos fraction without Cu, whereas sep.  
 applications of the insol. ammophos fraction and CuSO<sub>4</sub> doubled the yield. However,  
 adding 0.34% CuSO<sub>4</sub> to liquid N-P fertilizers containing NH<sub>4</sub> polyphosphates did not  
 decrease Cu effectiveness. Cu applied on the surface of ammophos granules as a  
 Cu(NH<sub>4</sub>)<sub>2</sub> OEDF complex, retained its effectiveness in barley, whereas the same complex  
 applied to superphosphate during granulation was ineffective. Amending KCl with Cu

# 10/580,124-337515-EIC SEARCH

increased barley grain yield to 5.0 g/pot from 2.7 g/pot in controls treated with KCl without Cu. Mixing superphosphate with KCl without or with Cu gave yields of 2.3 and 5.7 g/pot, resp. Superphosphate increased utilization of Cu added to KCl from 5.0 to 7.4%. Cu of CuSO<sub>4</sub> added to NH<sub>4</sub>NO<sub>3</sub> or KCl was ≥24% soluble, whereas in urea or double superphosphate Cu was 16-20% soluble, and in nitroamphoska Cu was 16-17% soluble

IT 12158-74-6, Copper hydroxide phosphate  
(Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: BIOL (Biological study)

(formation and precipitation of, in copper sulfate-calcium monohydrogen phosphate reaction, copper availability decrease by)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component	Registry Number
HO	1		14280-30-9
O4P	1		14265-44-2
Cu	2		7440-50-8

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

IT 12158-74-6, Copper hydroxide phosphate  
(Cu<sub>2</sub>(OH)(PO<sub>4</sub>))

RL: BIOL (Biological study)

(formation and precipitation of, in copper sulfate-calcium monohydrogen phosphate reaction, copper availability decrease by)

L87 ANSWER 19 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1986:213030 HCAPLUS Full-text

DOCUMENT NUMBER: 104:213030

ORIGINAL REFERENCE NO.: 104:33669a,33672a

TITLE: Dentifrice for hypersensitive teeth

INVENTOR(S): Scheller, Hans Ulrich

PATENT ASSIGNEE(S): Wuernttembergische Parfuermerie-Fabrik G.m.b.H.,

Fed. Rep. Ger.

SOURCE: Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 165454	A2	19851227	EP 1985-105826	1985 0511
EP 165454	A3	19861230	<--	
EP 165454	B1	19910123		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
US 4634589	A	19870106	US 1985-731286	1985 0507
AT 60222	T	19910215	AT 1985-105826	1985 0511
JP 60255716	A	19851217	JP 1985-104903	1985 0515
JP 63050324	B	19881007	<--	
CA 1254150	A1	19890516	CA 1985-481719	



## 10/580,124-337515-EIC SEARCH

1985  
0516

1986  
0114

1986  
0925

1984  
0518

1985  
0507

1985  
0511

1985  
0516

1986  
0114

1986  
0925

1984  
0518

1985  
0507

1985  
0511

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 14 Jun 1986

AB A toothpaste for hypersensitive teeth contains apatite with a mean particle size <100 .mu.m and an abrasion value (RDA) <30, such as hydroxyapatite and/or fluorapatite, as well as a local anesthetic, but no water-soluble mineral salts. Of the apatite, 15% must have a particle size <8 .mu.m. Thus, a toothpaste contained Aerosil 200 2.40, CM-cellulose 1.00, Na lauryl sulfate 2.75, glycerol 20.80, Hostapon KTW 0.90, Me p-hydroxybenzoate Na salt 0.20, Na saccharin 0.25, tri-Ca hydroxyapatite 17.00, water 50.699, S-erythrosin 76E127 0.001, flavor 1.50, and propylene glycol 2.50%.

IT 53572-65-9  
RL: BIOL (Biological study)  
(toothpaste containing local anesthetic and)

RN 53572-65-9 HCAPLUS

CN Calcium hydroxide phosphate (Ca3(OH)3(PO4)) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	3	14280-30-9
O4P	1	14265-44-2
Ca	3	7440-70-2

IPCI A61K0007-16 [ICM,4]

IPCR A61K0008-00 [I,C\*]; A61K0008-00 [I,A]; A61K0008-19 [I,C\*];  
A61K0008-24 [I,A]; A61Q0011-00 [I,C\*]; A61Q0011-00 [I,A]

CC 62-7 (Essential Oils and Cosmetics)

IT 1306-05-4 1306-06-5 53572-65-9  
RL: BIOL (Biological study)  
(toothpaste containing local anesthetic and)

OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)

L87 ANSWER 20 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1985:439322 HCAPLUS Full-text

DOCUMENT NUMBER: 103:39322

ORIGINAL REFERENCE NO.: 103:6369a,6372a

TITLE: Basic copper phosphate with a bright inherent color and a medium grain size < 10 µ

INVENTOR(S): Schueler, Ralf; Maahs, Guenther

PATENT ASSIGNEE(S): Chemische Werke Huels A.-G. , Fed. Rep. Ger.

## 10/580,124-337515-EIC SEARCH

SOURCE: Ger. Offen., 8 pp.  
 DOCUMENT TYPE: CODEN: GWXXBX  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: German  
 PATENT INFORMATION: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3342292	A1	19850530	DE 1983-3342292	1983 1123
EP 143933	A1	19850612	EP 1984-111457	1984 0926
EP 143933	B1	19870121		
R: AT, BE, CH, DE, FR, GB, IT, LI, NL				
AT 25067	T	19870215	AT 1984-111457	1984 0926
US 4567220	A	19860128	US 1984-664838	1984 1025
JP 60131815	A	19850713	JP 1984-243569	1984 1120
BR 8405945	A	19850917	BR 1984-5945	1984 1122
PRIORITY APPLN. INFO.:			DE 1983-3342292	A 1983 1123
			EP 1984-111457	A 1984 0926

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 10 Aug 1985

AB Bright-colored basic Cu phosphate (I) of the composition  $\text{Cu}_3(\text{PO}_4)_2 \cdot 2\text{Cu}(\text{OH})_2$  with an average grain size  $<10\mu$  was obtained by treating an aqueous suspension of  $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$  or  $2\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$  (bulk d.  $>800\text{ g/L}$ ) with  $\text{H}_3\text{PO}_4$  at  $<70^\circ$ , heating the reaction mixture to  $90-100^\circ$  for the removal of residual  $\text{CO}_2$ , separation of I from the aqueous phase, and drying at  $\leq 1\text{ atm}$  and  $100-120^\circ$ . The I is used as a smoke suppressant in thermoplastics, especially in poly(vinyl chloride). Thus, 84 g of I containing Cu 52.9, P 12.9, and H 0.36% consisting of .apprx.  $3\mu$  long and .apprx.  $0.3\mu$  thick crystals was obtained by treating on aqueous suspension containing 83 g  $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$  (bulk d. .apprx.  $500\text{ g/L}$ ) in 500 mL  $\text{H}_2\text{O}$  under stirring at  $55^\circ$  for 40 min, followed by 30 min boiling, filtering, and drying at  $<1\text{ atm}$  and  $100^\circ$ . The pH of the reaction mixture decreased during stirring from 8 to 4 and the color of the reaction product turned from light blue to light green and finely to almost white.

IT 12158-74-6P

RL: PREP (Preparation)

(preparation of, from basic copper carbonate and phosphoric acid)

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate ( $\text{Cu}_2(\text{OH})(\text{PO}_4)$ ) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number

# 10/580,124-337515-EIC SEARCH

HO		1		14280-30-9
O4P		1		14265-44-2
Cu		2		7440-50-8

IPCI C01B0025-37 [ICM,3]; C01B0025-00 [ICM,3,C\*]; C01G0003-00 [ICS,3];  
C08K0003-32 [ICS,3]; C08K0003-00 [ICS,3,C\*]; C08L0027-06 [ICS,3];  
C08L0027-00 [ICS,3,C\*]  
IPCR C08K0003-00 [I,A]; C01B0025-00 [I,C\*]; C01B0025-37 [I,A];  
C08K0003-00 [I,C\*]; C08K0003-28 [I,A]; C08K0003-32 [I,A];  
C08L0001-00 [I,C\*]; C08L0001-00 [I,A]; C08L0027-00 [I,C\*];  
C08L0027-00 [I,A]  
CC 49-5 (Industrial Inorganic Chemicals)  
Section cross-reference(s): 38  
ST copper phosphate smoke suppressant thermoplastic;  
polyvinyl chloride smoke suppressant  
IT 12158-74-6P  
RL: PREP (Preparation)  
(preparation of, from basic copper carbonate and phosphoric acid)  
OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE  
THIS RECORD (3 CITINGS)

L87 ANSWER 21 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN  
ACCESSION NUMBER: 1979:125489 HCAPLUS Full-text  
DOCUMENT NUMBER: 90:125489  
ORIGINAL REFERENCE NO.: 90:19829a,19832a  
TITLE: Study of the mechanism of the anticorrosion  
ability of low-alloy steel resistant to  
atmospheric corrosion  
AUTHOR(S): Markovic, Savo  
CORPORATE SOURCE: Metal. Fak., Zenica, Yugoslavia  
SOURCE: Tehnika (Belgrade, Yugoslavia) (1978  
, 33(10), RGM19-RGM24  
CODEN: TEHBA5; ISSN: 0040-2176  
DOCUMENT TYPE: Journal  
LANGUAGE: Serbo-Croatian  
ED Entered STN: 12 May 1984  
AB The mechanism of formation of corrosion layer and its composition were studied. X-ray  
anal. of rust indicated that steel with the lowest rate of corrosion had an increased  
formation rate of  $\alpha$ -FeOOH. Electron microscopy of rust revealed for the 1st time new  
phases, such as:  $\text{Cu}_5(\text{PO}_4)_2(\text{OH})_4$  [ 62683-60-7],  $\text{CuSO}_4 \cdot 3\text{H}_2\text{O}$  and  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ,  $\gamma$ -Fe $2\text{O}_3$ ,  
2FeCl $3 \cdot 5\text{H}_2\text{O}$ , and  $\text{Cu}_3(\text{PO}_4)_2 \cdot 3\text{H}_2\text{O}$ . After a period of 18 mo of corrosion in clean  
atmospheric the rust powder also contained FeO and  $\text{Cu}_5(\text{PO}_4)_2(\text{OH})_4$ . During the 1st 24 h  
of corrosion  $\gamma$ -FeOOH and  $\gamma$ -Fe $2\text{O}_3$  were detected and later after another 24 h  $\alpha$ -FeOOH,  
Fe $3\text{O}_4$ , and  $\text{CuSO}_4 \cdot 3\text{H}_2\text{O}$  were detected.  
IT 62683-60-7P  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in rust formed on atmospheric corrosion-resistant  
steel)  
RN 62683-60-7 HCAPLUS  
CN Copper hydroxide phosphate ( $\text{Cu}_5(\text{OH})_4(\text{PO}_4)_2$ ) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	4	14280-30-9
O4P	2	14265-44-2
Cu	5	7440-50-8

CC 55-9 (Ferrous Metals and Alloys)  
IT 7758-99-8P 16448-28-5P 62683-60-7P  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in rust formed on atmospheric corrosion-resistant  
steel)

L87 ANSWER 22 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

## 10/580,124-337515-EIC SEARCH

ACCESSION NUMBER: 1967:97000 HCAPLUS Full-text  
 DOCUMENT NUMBER: 66:97000  
 ORIGINAL REFERENCE NO.: 66:18219a,18222a  
 TITLE: Potassium-enriched conditioning agent for salt  
 INVENTOR(S): Norsen, Henry N.  
 SOURCE: U.S., 2 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3306753		19670228	US 1964-350697	1964 0310

<--

ED Entered STN: 12 May 1984  
 AB The title composition comprising a mixture of KCl, KH<sub>2</sub>PO<sub>4</sub>, and tri-Ca phosphate, in which the mole ratio of KCl/KH<sub>2</sub>PO<sub>4</sub> is 1:5-7 and the Ca/K ratio is 1.05-1.27, is prepared by blending the mixture with water to form a paste, drying the paste to form a solid residue, and grinding the residue to substantially the particle size of the original tri-Ca phosphate. The amount of conditioning agent added to the salt is 0.40-1.00% by weight  
 IT 12049-64-8, Calcium hydroxide phosphate (Ca<sub>2</sub>(OH)(PO<sub>4</sub>))  
 RL: USES (Uses)  
 (sodium chloride conditioning agent from monopotassium phosphate, potassium chloride and)  
 RN 12049-64-8 HCAPLUS  
 CN Calcium hydroxide phosphate (Ca<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Ca	2	7440-70-2

INCL 099143000  
 IPCR A23L0001-237 [I,C\*]; A23L0001-237 [I,A]  
 NCL 426/649.000; 252/381.000; 423/267.000; 426/806.000  
 CC 49 (Industrial Inorganic Chemicals)  
 IT 7647-14-5, uses and miscellaneous  
 RL: USES (Uses)  
 (potassium-enriched conditioning agent for, from calcium hydroxide phosphate (Ca<sub>2</sub>(OH)(PO<sub>4</sub>)), monopotassium phosphate and potassium chloride)  
 IT 7447-40-7, uses and miscellaneous  
 RL: USES (Uses)  
 (sodium chloride conditioning agent from calcium hydroxide phosphate (Ca<sub>2</sub>(OH)(PO<sub>4</sub>)), monopotassium phosphate and)  
 IT 7778-77-0  
 RL: USES (Uses)  
 (sodium chloride conditioning agent from calcium hydroxide phosphate (Ca<sub>2</sub>(OH)(PO<sub>4</sub>)), potassium chloride and)  
 IT 12049-64-8, Calcium hydroxide phosphate (Ca<sub>2</sub>(OH)(PO<sub>4</sub>))  
 RL: USES (Uses)  
 (sodium chloride conditioning agent from monopotassium phosphate, potassium chloride and)

## 10/580,124-337515-EIC SEARCH

ACCESSION NUMBER: 1961:40356 HCAPLUS  
 DOCUMENT NUMBER: 55:40356  
 ORIGINAL REFERENCE NO.: 55:78444-f  
 TITLE: Extrudable solid propellant compositions  
 INVENTOR(S): Bice, Charles C.  
 PATENT ASSIGNEE(S): Phillips Petroleum Co.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2965465		19601220	US 1958-783646	1958 1219

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ED Entered STN: 22 Apr 2001

AB Complex phosphate compds. are used to improve the extrudability of solid propellant compns. Solid oxidizer-containing propellant compns. can be extruded in conventional equipment by incorporating an extrusion aid comprising certain orthophosphates, having the formula  $x[M3(PO4)2].M(OH)2$ , in which M is Ca, Zn, or Sr and both M atoms are alike; and x is 0.5-3.0. The compds. include:  $0.5[Ca3(PO4)2].Ca(OH)2$ ,  $Ca3(PO4)2.Ca(OH)2$ ,  $1.3[Ca3(PO4)2].Ca(OH)2$ ,  $2[Ca3(PO4)2].Ca(OH)2$ ,  $1.7[Ca3(PO4)2].Ca(OH)2$ ,  $3[Ca3(PO4)2].Ca(OH)2$ ,  $Zn3(PO4)2.Zn(OH)2$ ,  $2.2[Zn3(PO4)2].Zn(OH)2$ ,  $3[Zn3(PO4)2].Zn(OH)2$ ,  $Sr(PO4)2.Sr(OH)2$ ,  $2[Sr3(PO4)2].Sr(OH)2$ , and  $3[Sr3(PO4)2].Sr(OH)2$ . The extrudable solid propellant compns. have a high ratio of solid inorg. oxidizer to binder. The rubbery materials for use as binder and fuel component include natural and synthetic rubbers, while up to 100 parts by weight of C black per 100 parts by weight by rubber are used as a reinforcing filler and fuel. The complex phosphate compds. and plasticizer are usually blended with the oxidizer and the mixture incorporated into the binder. Curing takes place at 150-250°F. for 7-24 h. Thus, a rubbery polymer was prepared by emulsion polymerization at 41°F. of 90 parts 1,3-butadiene and 10 parts 2-methyl-5-vinylpyridine. The rubbery polymer used to prepare the binder consists of: 90-100 parts copolymer, 22 parts furnace C black, and 3 parts by weight antioxidant. The oxidizer used was phase-stabilized  $NH4NO3$ . The mixture was heated for 24 h. at 150° and ground to a particle size of 60  $\mu$ , and the stabilized oxidizer was mixed with the burning-rate catalyst ( $(NH4)2Cr2O7$  of 18  $\mu$ ). This mixture was used for the preparation of the propellant composition by adding the remaining ingredients, then extruding through a 0.5-in.-diameter die with a pressure of 9600 lb./sq. in. and measuring the rate of extrusion. The complex phosphate compds. caused the compns. to extrude rapidly and the grains were smooth and free of defects.

IT 12049-64-8

(Derived from data in the 6th Collective Formula Index  
 (1957-1961))

RN 12049-64-8 HCAPLUS

CN Calcium hydroxide phosphate ( $Ca2(OH)(PO4)$ ) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Ca	2	7440-70-2

IPCR C06B0023-00 [I,C\*]; C06B0023-00 [I,A]

NCL 149/007.000; 149/060.000; 149/076.000

CC 24 (Propellants, Explosives, and Explosions)

IT 628-96-6 12049-64-8 12167-74-7 123355-08-8

123355-09-9 124343-18-6

(Derived from data in the 6th Collective Formula Index  
 (1957-1961))

L87 ANSWER 24 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1957:98048 HCAPLUS Full-text

## 10/580,124-337515-EIC SEARCH

DOCUMENT NUMBER: 51:98048  
 ORIGINAL REFERENCE NO.: 51:17625e-i  
 TITLE: Mineralogy of the arsenates, phosphates, and vanadates of copper. I. Arsenates of copper  
 AUTHOR(S): Guillemin, C.  
 CORPORATE SOURCE: Sorbonne, Paris  
 SOURCE: Bulletin de la Societe Francaise de Mineralogie et de Cristallographie (1956), 79, 7-95  
 CODEN: BUFCAB; ISSN: 0037-9328

DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

ED Entered STN: 22 Apr 2001

AB Arsenates of copper are relatively common in nature. They should be found in all deposits containing the gray Cu minerals. By their presence in a gossan they are indicators of the Cu minerals at depth. The dispersion of the Cu arsenates in relation to the primary minerals is a function of their pyrite content. The Cu arsenates have been studied by means of qual., macro-, and microquant. anal., by hydrostatic d. determination with a microbalance, by study of optical properties, by dehydration, by x-ray methods, and by synthesis. One new species is described, as duftite has been separated into 2 species, structurally different: duftite- $\alpha$ , orthorhombic and holohedral, and duftite- $\beta$ , orthorhombic and sphenoidal. Duftite- $\beta$  forms a complete isomorphic series with conichalcite and a partial isomorphous series with mottramite. The minerals containing more than 32.5% PbO are assigned to duftite- $\beta$ ; those containing more than 8.2% CaO are assigned to conichalcite. In both duftite- $\alpha$  and duftite- $\beta$  the V2O5 content was less than 0.05%. Duftite- $\beta$ , (Pb, Ca)Cu(AsO4)(OH), has a d. of 5.86  $\pm$  0.03, hardness 4.5, conchoidal fracture, greasy luster, and no cleavage. Its color varies from dark olive-green to yellowish green; it is green in transmitted light; and nonpleochroic. Its average n is 1.97  $\pm$  0.01. Duftite- $\beta$  occurs in crystals 0.1 mm. in length and 0.01 mm. in thickness. Its parameters are: a = 7.49 Å; b = 9.36 Å; c = 5.91 Å. Anal. gives Pb/Ca = 3.2. Duftite- $\beta$  is not transformed into duftite- $\alpha$  by the action of water at pH 3 during 5 days at 200°. Discredited are: trichalcite = tyrolite or langite; freirinite = lavendulan; cuproplumbite = bayldonite. Parabayldonite is a phase between duftite- $\beta$  and conichalcite. Redefined are lindackerite, lavendulan, and tyrolite. Certain Cu arsenates in the presence of water are transformed into more stable species. Euchroite, lindackerite, lavendulan, chalcophyllite, and liroconite give olivenite; tyrolite, according to pH is transformed into olivenite (pH = 3) or in alkaline conditions into conichalcite. Studied by synthesis are euchroite, erinite, lavendulan, conichalcite, bayldonite, and duftite.

IT 125761-45-7  
 (Derived from data in the 6th Collective Formula Index  
 (1957-1961))

RN 125761-45-7 HCAPLUS

CN Copper hydroxide phosphate (Cu3(OH)3(PO4)) (CA INDEX NAME)

Component	Ratio	Component	Registry Number
HO	3		14280-30-9
O4P	1		14265-44-2
Cu	3		7440-50-8

CC 8 (Mineralogical and Geological Chemistry)

IT 125761-45-7  
 (Derived from data in the 6th Collective Formula Index  
 (1957-1961))

OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE  
 THIS RECORD (15 CITINGS)

L87 ANSWER 25 OF 25 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1957:98046 HCAPLUS Full-text

DOCUMENT NUMBER: 51:98046

ORIGINAL REFERENCE NO.: 51:17625c-d

TITLE: Identification of native copper phosphates by  
 x-rays

## 10/580,124-337515-EIC SEARCH

AUTHOR(S): Smid, Bohumil  
 CORPORATE SOURCE: Charles Univ., Prague  
 SOURCE: Rozpravy Ceskoslov. akad. ved., Rada mat. a  
 prirod. ved. (1957), 67(No. 5),  
 67-73  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

ED Entered STN: 22 Apr 2001

AB Debye-Scherrer diagrams show that the minerals hitherto named phosphorochalcite, lunnite, ehlite, pseudo-malachite, tagilite, and dihydrite are identical. Libethenite is not identical but a well-defined mineral.

IT 12158-74-6 62683-60-7

(Derived from data in the 6th Collective Formula Index  
 (1957-1961))

RN 12158-74-6 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>2</sub>(OH)(PO<sub>4</sub>)) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	1	14280-30-9
O4P	1	14265-44-2
Cu	2	7440-50-8

RN 62683-60-7 HCAPLUS

CN Copper hydroxide phosphate (Cu<sub>5</sub>(OH)<sub>4</sub>(PO<sub>4</sub>)<sub>2</sub>) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
HO	4	14280-30-9
O4P	2	14265-44-2
Cu	5	7440-50-8

CC 8 (Mineralogical and Geological Chemistry)

IT 12158-74-6 62683-60-7

(Derived from data in the 6th Collective Formula Index  
 (1957-1961))

=>

## 10/580,124-337515-EIC SEARCH

FULL SEARCH HISTORY

=&gt; d his nofile

(FILE 'HOME' ENTERED AT 13:46:30 ON 22 JUL 2010)

FILE 'HCAPLUS' ENTERED AT 13:46:39 ON 22 JUL 2010

E US20070155881/PN

L1 1 SEA SPE=ON ABB=ON PLU=ON US20070155881/PN  
D SCA  
SEL RN

FILE 'REGISTRY' ENTERED AT 13:47:03 ON 22 JUL 2010

L2 16 SEA SPE=ON ABB=ON PLU=ON (12158-74-6/BI OR 125761-45  
-7/BI OR 25038-59-9/BI OR 62683-60-7/BI OR 79-10-7/BI  
OR 852929-90-9/BI OR 852929-92-1/BI OR 852929-94-3/BI  
OR 852929-96-5/BI OR 852929-98-7/BI OR 852930-00-8/BI  
OR 852930-02-0/BI OR 852930-04-2/BI OR 852930-06-4/BI  
OR 9003-53-6/BI OR 9003-56-9/BI)  
D SCA

FILE 'STNGUIDE' ENTERED AT 13:47:19 ON 22 JUL 2010

FILE 'REGISTRY' ENTERED AT 13:49:32 ON 22 JUL 2010

L3 12 SEA SPE=ON ABB=ON PLU=ON L2 AND M/ELS  
L4 4 SEA SPE=ON ABB=ON PLU=ON L2 NOT L3  
D SCA  
D SCA L3

FILE 'HCAPLUS' ENTERED AT 13:50:22 ON 22 JUL 2010

D L1 ALL

FILE 'STNGUIDE' ENTERED AT 13:51:36 ON 22 JUL 2010

FILE 'REGISTRY' ENTERED AT 14:07:40 ON 22 JUL 2010

L5 1444541 SEA SPE=ON ABB=ON PLU=ON (P(L)O(L)H)/ELS  
E CA/ELS  
L6 112923 SEA SPE=ON ABB=ON PLU=ON CA/ELS  
L7 5428 SEA SPE=ON ABB=ON PLU=ON L5(L)L6  
E 4/ELC.SUB  
L8 QUE SPE=ON ABB=ON PLU=ON 4/ELC.SUB  
L9 318 SEA SPE=ON ABB=ON PLU=ON L7 AND L8  
L10 15 SEA SPE=ON ABB=ON PLU=ON L9 AND CA3  
L11 286 SEA SPE=ON ABB=ON PLU=ON L9 AND CA  
L12 15 SEA SPE=ON ABB=ON PLU=ON L10 AND L11  
D SCA

FILE 'STNGUIDE' ENTERED AT 14:13:01 ON 22 JUL 2010

FILE 'REGISTRY' ENTERED AT 14:18:03 ON 22 JUL 2010

L13 2 SEA SPE=ON ABB=ON PLU=ON L12 AND "CA . H O . O4  
P"/MF  
D SCA  
L14 3888 SEA SPE=ON ABB=ON PLU=ON (?HYDROXIDE?(L)?PHOSPHATE?)  
/CIS  
L15 4 SEA SPE=ON ABB=ON PLU=ON L12 AND L14  
D SCA  
E CU/ELS  
L16 580252 SEA SPE=ON ABB=ON PLU=ON CU/ELS  
L17 148 SEA SPE=ON ABB=ON PLU=ON L16(L)L7  
L18 1 SEA SPE=ON ABB=ON PLU=ON L2 AND L17  
D SCA  
L19 QUE SPE=ON ABB=ON PLU=ON 5/ELC.SUB  
L20 43 SEA SPE=ON ABB=ON PLU=ON L17 AND L19  
L21 4 SEA SPE=ON ABB=ON PLU=ON L15(L)L5  
D QUE



## 10/580,124-337515-EIC SEARCH

L22 14391 SEA SPE=ON ABB=ON PLU=ON L16 (L) L5  
 L23 12 SEA SPE=ON ABB=ON PLU=ON L2 AND L22  
 L24 3 SEA SPE=ON ABB=ON PLU=ON L23 AND L8  
 L25 134 SEA SPE=ON ABB=ON PLU=ON L22 (L) L8  
 L26 3 SEA SPE=ON ABB=ON PLU=ON L2 AND L25  
 D SCA  
 E FE/ELS  
 L27 946628 SEA SPE=ON ABB=ON PLU=ON FE/ELS  
 D QUE L22  
 L28 446 SEA SPE=ON ABB=ON PLU=ON L22 (L) L27  
 L29 16 SEA SPE=ON ABB=ON PLU=ON L28 (L) L19  
 L30 2 SEA SPE=ON ABB=ON PLU=ON L2 AND L29  
 D SCA  
 E AL/ELS  
 L31 426955 SEA SPE=ON ABB=ON PLU=ON AL/ELS  
 D QUE L30  
 L32 93759 SEA SPE=ON ABB=ON PLU=ON L16 (L) L31  
 L33 15487 SEA SPE=ON ABB=ON PLU=ON L32 (L) L19  
 L34 2 SEA SPE=ON ABB=ON PLU=ON L33 AND L2  
 D SCA  
 D QUE L33  
 L35 9 SEA SPE=ON ABB=ON PLU=ON L33 AND L14  
 D SCA  
 L36 2 SEA SPE=ON ABB=ON PLU=ON L2 AND L35  
 D SCA  
 E ZN/ELS  
 L37 245550 SEA SPE=ON ABB=ON PLU=ON ZN/ELS  
 L38 23200 SEA SPE=ON ABB=ON PLU=ON L37 (L) L32  
 L39 1 SEA SPE=ON ABB=ON PLU=ON L2 AND L38  
 D SCA  
 D QUE L22  
 L40 254 SEA SPE=ON ABB=ON PLU=ON L22 (L) L37  
 L41 34 SEA SPE=ON ABB=ON PLU=ON L40 (L) L19  
 L42 2 SEA SPE=ON ABB=ON PLU=ON L2 AND L41  
 D SCA  
 E MG/ELS  
 L43 176857 SEA SPE=ON ABB=ON PLU=ON MG/ELS  
 L44 55 SEA SPE=ON ABB=ON PLU=ON L22 (L) L43  
 L45 29 SEA SPE=ON ABB=ON PLU=ON L44 AND L19  
 L46 1 SEA SPE=ON ABB=ON PLU=ON L45 AND L2  
 L47 16 SEA SPE=ON ABB=ON PLU=ON L13 OR L15 OR L26 OR L18  
 OR L30 OR L34 OR L36 OR L39 OR L42 OR L46  
 L48 16 SEA SPE=ON ABB=ON PLU=ON L47 AND L14  
 FILE 'HCAPLUS' ENTERED AT 14:58:00 ON 22 JUL 2010  
 L49 108 SEA SPE=ON ABB=ON PLU=ON L48  
 D SCA L1  
 L50 1 SEA SPE=ON ABB=ON PLU=ON L1 AND L49  
 D SCA  
 D ABS  
 L51 QUE SPE=ON ABB=ON PLU=ON MICRON OR MICROMET? OR  
 MM OR MU (M) (M OR METER OR METRE)  
 L52 4 SEA SPE=ON ABB=ON PLU=ON L49 AND L51  
 D KWIC  
 D KWIC 2  
 D KWIC 3  
 D KWIC 4  
 E PARTICLE SIZE/CT 25  
 E E3+ALL  
 L53 QUE SPE=ON ABB=ON PLU=ON "PARTICLE SIZE"+ALL/CT  
 L54 1 SEA SPE=ON ABB=ON PLU=ON L49 AND L53  
 D KWIC  
 L55 QUE SPE=ON ABB=ON PLU=ON MICRO? AND L49  
 L56 10 SEA SPE=ON ABB=ON PLU=ON MICRO? AND L49  
 D KWIC  
 D KWIC 5

# 10/580,124-337515-EIC SEARCH

L57 105267 SEA SPE=ON ABB=ON PLU=ON LTORREQ(3A)2  
 L58 1 SEA SPE=ON ABB=ON PLU=ON L57 AND L49  
 D KWIC  
 L59 0 SEA SPE=ON ABB=ON PLU=ON L58 AND L51  
 L60 0 SEA SPE=ON ABB=ON PLU=ON L58 AND L56  
 L61 14 SEA SPE=ON ABB=ON PLU=ON L52 OR L54 OR L56 OR L58  
 L62 QUE SPE=ON ABB=ON PLU=ON THERMOPLAST? OR THERM?(A)PL  
 ASTIC?  
 L63 5 SEA SPE=ON ABB=ON PLU=ON L49 AND L62  
 L64 QUE SPE=ON ABB=ON PLU=ON 0.001(3W)2  
 L65 0 SEA SPE=ON ABB=ON PLU=ON L49 AND L64  
 L66 QUE SPE=ON ABB=ON PLU=ON SCHERRER?  
 L67 1 SEA SPE=ON ABB=ON PLU=ON L49 AND L66  
 D KWIC  
 L68 QUE SPE=ON ABB=ON PLU=ON TRANSPAREN? OR CLEAR?  
 L69 4 SEA SPE=ON ABB=ON PLU=ON L49 AND L68  
 D KWIC  
 L70 QUE SPE=ON ABB=ON PLU=ON IR OR INFRARED? IR VISIBL?  
 L71 11 SEA SPE=ON ABB=ON PLU=ON L49 AND L70  
 D KWIC  
 L72 QUE SPE=ON ABB=ON PLU=ON WAVELENGTH OR NM OR  
 NANOMET? OR NANO?(A) (METER OR METRE)  
 L73 5 SEA SPE=ON ABB=ON PLU=ON L49 AND L72

FILE 'REGISTRY' ENTERED AT 15:15:06 ON 22 JUL 2010  
 D SCA L4

FILE 'HCAPLUS' ENTERED AT 15:15:13 ON 22 JUL 2010

L74 306712 SEA SPE=ON ABB=ON PLU=ON L4  
 L75 5 SEA SPE=ON ABB=ON PLU=ON L49 AND L74  
 L76 31 SEA SPE=ON ABB=ON PLU=ON L52 OR L54 OR L56 OR L58  
 OR L61 OR L63 OR L65 OR L67 OR L69 OR L71 OR L73  
 L77 1 SEA SPE=ON ABB=ON PLU=ON L1 AND L76  
 D KWIC  
 L78 QUE SPE=ON ABB=ON PLU=ON PY=<2003 NOT P/DT  
 L79 QUE SPE=ON ABB=ON PLU=ON (PY=<2003 OR PRY=<2003 OR  
 AY=<2003 OR MY=<2003 OR REVIEW/DT) AND P/DT  
 L80 22 SEA SPE=ON ABB=ON PLU=ON L76 AND (L78 OR L79)  
 L81 86 SEA SPE=ON ABB=ON PLU=ON L49 AND (L78 OR L79)  
 L82 QUE SPE=ON ABB=ON PLU=ON PARTICL? OR MICROPARTICL?  
 OR PARTICULAT? OR DUST? OR GRIT? OR GRAIN# OR GRANUL?  
 OR POWDER? OR SOOT? OR SMUT? OR FINES# OR PRILL? OR  
 FLAKE# OR PELLET? OR BB#  
 L83 QUE SPE=ON ABB=ON PLU=ON SIZ?(3A)L82  
 L84 6 SEA SPE=ON ABB=ON PLU=ON L81 AND L83  
 L85 25 SEA SPE=ON ABB=ON PLU=ON L80 OR L84  
 SAV TEMP L85 SHE124REG/A  
 D SCA

FILE 'STINGUIDE' ENTERED AT 15:23:28 ON 22 JUL 2010

FILE 'HCAPLUS' ENTERED AT 15:24:14 ON 22 JUL 2010

L86 19 SEA SPE=ON ABB=ON PLU=ON (?PHOSPHAT?(3A)?HYDROX?)  
 AND L85  
 L87 25 SEA SPE=ON ABB=ON PLU=ON L86 OR L85  
 SAV TEMP L85 SHE124HCP/A  
 D SAV  
 DEL SHE124REG/A  
 D QUE L87  
 D L87 1-25 IBIB ED ABS HITSTR HITIND